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# **Pankaj Oudhia's Notes on Terminalia chebula Retz. [Kirtikar, Kanhoba Ranchoddas, and Baman Das Basu. "Indian Medicinal Plants." Indian Medicinal Plants. (1918)].**

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## Pankaj Oudhia

### Introduction

**Based on Ethnobotanical surveys since year 1990 in different parts of India Pankaj Oudhia has documented vital information about Medicinal Plants mentioned in the famous publication by Kirtikar and Basu (1918). Through this research document Pankaj Oudhia has tried to present original document with additional notes. For complete paper with pictures, Interactive Tables, Video and Audio clips please visit [pankajoudhia.com](http://pankajoudhia.com)**

For original publication by Kirtikar and Basu (1918) please visit <https://archive.org/details/indianmedicinalp01kirt>

492. T. chebula, Retz, h.f.b.i., ii. 446, Roxb.

381.

Sans. : — Haritaki.

Vern. : — Hara, har, harara (H.) ; Haritaki (B.) ; Hilikha

(Ass.) ; Silim (Lepch.) ; Karedha (Uriya) ; FTana, Silim-kung

(Sikkim) ; Harda (Dec.) ; Kadukai-maram (Tarn.) ; Karakaia

(Tel.) ; Alale (Mysore).

<iframe width="560" height="315" src="//www.youtube.com/embed/JPYP\_FmmRUw" frameborder="0" allowfullscreen></iframe>

Habitat: — Abundant in Northern India, from Kumaon to Bengal, and southward to the Deccan table-land.

A large or small deciduous tree. Bark ^in. thick, dark-brown, with numerous, generally shallow, vertical cracks. Wood very hard, brownish-grey, with a greenish or yellowish

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tinge, with an irregular, dark-purple heartwood, close-grained, fairly durable. Branchlets, leaf-buds and young leaves, with soft shining generally rust-coloured hairs. Leaves distant, often sub-opposite, elliptic or ovate ; secondary nerves 6-8 pair, arching, prominent; blade 3-8in. long, petiole i-lin. long. Two glands or swellings on petiole near top. Flowers bisexual, ^in. across, sessile, dull white or yellow, with an offensive smell.

Spikes sometimes simple, usually in short panicles, terminal

and in the axils of the uppermost leaves. Bracts subulate or lanceolate, longer than buds, deciduous. Limb of Calyx cup-shaped, cleft half way into 5 acute, triangular segments, woolly inside. Fruit more or less distinctly 5-angled, obovoid from a cuneate base, sometimes ovoid or nearly globose, 1-1½ in. long ; shape and size of fruit varies accordingly.

Mr. Duthie writes : — " In Northern India the tree does not attain to any great size, but large trees, up to 100 feet in height, are often met with south of the Nerbudda."

Uses : — Sanskrit writers describe chebulic myrobalans as laxative, stomachic, tonic and alterative. They are used in fevers, cough, asthma, urinary diseases, piles, intestinal worms, chronic diarrhoea, costiveness, flatulence, vomiting, hiccup, heart-diseases, enlarged spleen and liver, ascites, skin diseases, &c. In combination with embelic and beleric myrobalans, they are extensively used as adjuncts to other medicines in almost all diseases. As an alterative tonic for promoting strength, preventing the effects of age and prolonging life, it is used in a peculiar way. (Dutt).

Mahomedan writers consider the ripe fruit as purgative, removing bile, phlegm and adjust bile. The unripe fruit is most valued on account of its astringent and aperient properties, and is a useful medicine in dysentery and diarrhoea. Ainslie notices their use as an application to aphthae (Dymock).

" The fruits are used as a medicine for sore-throat, by the Paharias in Sikkim" (Gamble).

Recently M. P. Apery has brought to the notice of the profession in Europe the value of the drug in dysentery, choleraic

#### N. 0. COMBRETACE<sup>^</sup>. 543

diarrhoea and chronic diarrhoea. He administers it in pills of 25 centigrammes each, the dose being from four to twelve pills or even more in the twenty-four hours (Pharmacog. Ind.).

It is therefore possible that the therapeutic value of myrobals may before long form the subject of systematic investiga-

tion (Watt).

A fruit, finely powdered, is used as dentifrice. Said to be useful in carious teeth, bleeding and ulcerations of the gums (B. D. Basu).

A fruit, coarsely powdered and smoked in a pipe, affords relief in a fit of asthma. A decoction of the fruit is a good astringent wash. A fine paste, obtained by rubbing the fruit on a rough stone with little water, mixed with the carron oil of the Pharmacopeia and applied to burns and scalds, effects a more rapid cure than when carron oil alone is used (D. R. Thompson in Watt's Die).

<iframe width="420" height="315" src="//www.youtube.com/embed/Y4jycAPLbk4" frameborder="0" allowfullscreen></iframe>

Water in which the fruits are kept for the night is considered a very cooling wash for the eyes. The ashes mixed with butter form a good ointment for sores (Robb, in Watt's Die).

**[Pankaj Oudhia's Comment: *Through Ethnobotanical surveys in last two decades in different parts of India I have documented information about over 100,000 Traditional Herbal Formulations in which Harad is used as primary, secondary, tertiary etc. ingredients. Majority of the Formulations are still new to Modern Science. In Chhattisgarh Harad roots are added in over 10,000 Traditional Herbal Formulations as nonary ingredient. The Traditional Healers of Odisha use Harad Bark as septenary ingredient in more than 5000 Traditonal Herbal Formulations. Harad leaves are used both internally as well as externally. The Healers of Jharkhand, Chhattisgarh, Odisha and Andhra Pradesh add leaves of Harad in more than 30000 Traditional Herbal Formulations as secondary ingredint. Modern Research is focused on medicinal properties and uses of Harad fruits only. Insects attacking Harad trees are used as medicine in Traditional Entomophagy and Entomotherapy. For exhaustive list of reported and unreported Traditonal Herbal Formulations please see Table Harad-1 to Harad 150]***

On removing the astringent pulp of the myrobalans a hard, stony seed remains which weighs 37\*5 per cent, of the fruit. The seeds are sent in large quantities from the Central Provinces to Bombay as an oil seed. Within the seed is a kernel which yields to ether 3G'7 per cent, of a yellowish, pleasant and edible oil. A sample of the oil had an acid value of 89, saponification value of 192\*6, iodine value 87'5, and 96'2 per cent, of insoluble fatty acids and unsaponifiable matter.

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Ohebulic acid : — This is obtained from the fruits in the following manner :— The dried fruits are powdered, macerated for 10 days at the ordinary temperature with 90 per cent, alcohol, pressed and filtered. The alcohol is

completely removed from the extract, and the residue then dissolved in hot water ; cold water is added until no further milkiness appears, and the whole is allowed to settle, and then filtered. To the filtrate, sodium chloride is added until a permanent turbidity appears, and the solution is then shaken out with ethyl acetate, which dissolves chebulic and tannic acids. To remove the latter, the ethylacetate is distilled off, and the residue dissolved in water, and shaken out with ether ; from the aqueous solution crystals of chebulic acid then separate on standing, and may be recrystallised from hot water. The yield is 3\*5 per cent.

Chebolic acid,  $C_{28}H_{24}O_9$ , begins to melt at about  $200^\circ$ , and is optically active, having  $[\alpha]_D = +66-94^\circ$ . The molecular weight of the anhydrous compound was determined by Beekmann's boiling point method

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in acetone solution. The acid seems to be monobasic and forms an amorphous barium salt.  $(C_{28}H_{23}O_9)_2Ba$ , which is white when moist, and green when dry, and a grey, amorphous, basic (?) Zinc salt, probably  $(C_{28}H_{23}O_9)_2Zn \cdot ZnO$ . These salts appear, in general, to be decomposed by water, even

in the cold. With strychnine, an acid salt,  $C_{19}H_{22}N_2O_2$ , is formed. With benzoic chloride and soda, a yellowish, amorphous benzoyl derivative,  $C_{28}H_{20}O_4$ , melting at  $88.5^\circ$ , is obtained. With phenylhydrazine, chebolic acid yields a derivative in the form of a reddish powder, which melts at  $142^\circ$ , and, when dissolved in alcohol and treated with strong aqueous potash, yields a momentarily green, then mulberry-red, and, finally, brownish-red coloration. (Tannic acid, similarly treated, gives a green colour, only gradually changing to red ; gallic acid, an immediate red coloration). When chebolic acid is dissolved in alcohol, and the solution saturated with gaseous hydrogen chloride, some ethyl gallate is formed, and, in addition, a yellow, amorphous acid, somewhat analogous in its properties to tannic acid. Sulphuric acid hydrolyses chebolic acid to gallic acid and other undetermined products.— J. Ch. S. LXIV., pt. I. (1893), p. 212.

E-documents on Terminalia chebula

<http://ecoport.org/ep?SearchType=earticleList&Author=oudhia&...>

## Citation

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